

MENGYA INTEGRATED FARMERS ASSOCIATION (MIFA)

Store Management Plan

July 2016



RESEARCH
PROGRAM ON
Roots, Tubers
and Bananas



This document has been prepared by the MIFA Executive Committee with technical input provided by Self-Help Africa, the International Potato Center (CIP) and Buginyanya Agricultural Research and Development Institute (NARO-BugiZARDI) in the framework of the *Expanding Utilization of Roots, Tubers and Bananas and Reducing their Postharvest Losses* (RTB-ENDURE) project, implemented by CGIAR Research Program on Roots, Tubers and Bananas (RTB) with funding from the European Union and technical support from IFAD. MIFA remains solely responsible for the content of the store management plan and its implementation

Table of Contents

I.	INTRODUCTION.....	1
II.	WHO CAN STORE?.....	1
III.	HOW MUCH CAN BE STORED?.....	2
IV.	WHEN WILL STORAGE BE DONE?.....	4
V.	WHO DOES WHAT IN THE STORE?.....	5
VI.	DISTRIBUTION AND UTILIZATION OF STORE RETURNS.....	7
VII.	GUIDING PRINCIPLES FOR MIFA STORE MANAGEMENT	8
VIII.	MIFA STORE MANAGEMENT PROCESS	9
IX.	STORE RECORDS.....	12
X.	SECURITY MANAGEMENT STRATEGY FOR MIFA STORE	13

I. INTRODUCTION

The *Expanding Utilization of Roots, Tubers and Bananas and Reducing Their Postharvest Losses (RTB-ENDURE)* project implemented by the CGIAR Research Program on Roots, Tubers and Bananas (RTB) with funding by the European Union and technical support of IFAD has supported the construction of one collective ambient store at MIFA for research and development purposes.

MIFA will manage its store by:

Organizing members into clusters to enable them produce potatoes in phases for continuity of production.

MIFA will link up with other research and development partners like the International Potato Center (CIP), Buginyanya Agricultural Research and Development Institute (BugiZARDI) and Kachwekano Agricultural Research and Development Institute (KaZARDI) for accessing reliable seed potato.

MIFA will control and supervise the planting, weeding, spraying, dehaulming, harvesting and postharvest handling to ensure that good farming and management practices are adopted by members so that only quality wares are stored. The Production and Quality Control (PQC) committee will be responsible for ensuring adherence to good production practices.

MIFA will manage its store by providing timely recommendations about when to sell its produce (stored ware potatoes) and at what price to sell. Principally, sales will only be made when it is profitable, i.e., when the selling price per unit is higher than the production and storage cost per unit. The target will be to sell potatoes at times of the year when the prices are at the highest, however, caution will be taken not to store for too long to avoid quality deterioration of the wares. The Marketing Committee will collect market information and feed the Store Management Committee with updated information on price trends. Price trends will be used to project future prices and set target selling prices. At times of selling off the potato stock, the decision about the price to which potatoes are sold will be made by convening a general meeting to which at least two thirds of paid up members will be in attendance.

II. WHO CAN STORE?

Every fully paid up member is eligible to store potatoes. Each member is required to pay a one-off membership fee of UGX 10,000 and an annual subscription fee of UGX 10,000. A member must ascribe to and be willing to abide by the terms and conditions for the store utilization and MIFA constitution. MIFA currently has 20 members and all are fully paid up. Paid up members who plan to store will provide projections of

how much they intend to plant and store beforehand. This will help the Marketing Committee to forecast the supply and identify appropriate markets, the Store Management Committee to anticipate and allocate shares, and the Production and Quality Control Committee to plan their support monitoring activities.

III. HOW MUCH CAN BE STORED?

MIFA store has the capacity to store up to 400 bags of potatoes, each weighing about 100kg. Each member has the right to store at least one bag of potatoes. Before the planting season starts, the Executive Committee will convene a general meeting and agree on how many additional bags can be admitted from those members who are willing to store more potatoes, taking also into account the production capacity of each member. The decision will be taken at a general meeting in presence of all members or at least a quorum of two thirds. In case the demand for storage space exceeds the actual capacity of the store, the number of members with additional potatoes for storage, the quantity of additional potatoes and the amount of space available for additional potatoes will be determined. Then storage space will be allocated to each members as described in Box 1.

At the time of harvesting, each member will store quality potatoes that have been grown in his/her field following the recommended agronomic practices for potatoes to be stored. In case the own production is insufficient to fill the storage capacity that has been allocated to him/her prior to planting, the member has the right to purchase storable potatoes and priority will be given to other members because the history and quality of their crop will be known to the Production and Quality Control and Store Management Committees. In case potatoes are purchased from sources other than Association's members, the quality of the wares will be preliminary assessed and approved by the Production and Quality Control and Store Management Committees to ensure that only good quality potatoes suitable for storage are brought in the store. At the time of entry in the store, the wares will be graded by size (i.e., Large, Medium and Small).

Shares will be assigned to each member as described in Box 2 and, as explained in another section of the document, they provide the basis for the distribution of revenue from the sales of potatoes when the whole stock of stored potatoes is sold off. Shares will be assigned to each member based on the number of stored bags and, in order to incentivize storage of higher value tubers, on the grade of potatoes according to the following coefficients:

- 1 bag of large potatoes: 1 share
- 1 bag of Medium potatoes: 0.8 share
- 1 bag of Small potatoes: 0.6 share

If all farmers store large potatoes the total number of shares allocated to members will be 400. However, a lower number of shares will be allocated to members if medium and small size potatoes are stored too.

Box 1: Example of store space allocation

We have 400 bags to allocate to fill the store and, for instance, 18 out of 20 members want to store more than the agreed threshold of 1 bag per member: 1 of them want to store 30 more bags; 2 of them 20 more bags; 13 of them 15 more bags and the last 2 members 10 more bags. So the demand is for 425 bags to store (this is higher than 400). Space will be allocated by following the next steps:

1. Each member stores at least one bag (as agreed by the group for the spirit of togetherness).

Total space allocated so far is 20 bags [1 bag X 20 members]

Remaining space is $400 - 20 = 380$ bags

2. The total number of members with additional bags to store is determined. In this case 18 members.

3. The members with the lowest number of additional bags are considered first for the next round of allocation. In this case it is 10 bags (from 2 members). This (10 bags) is used to set the next threshold for allocation to all members [10 bags X 18 members = 180 bags].

Total space allocated so far is 200 bags [20 + 180]

Remaining space to be allocated is 200 bags [400-200]. This is to be allocated to the remaining 16 members.

4. The lowest number of additional bags among the remaining members is considered for next round of allocation (and so on). In this case it is 15 bags from 13 members. However, allocating 15 bags to each of the remaining 16 farmers would require space for 240 bags, which exceeds the remaining space of 200 bags.

5. The highest number of bags that each member can contribute is considered [$200/16 = 12.5$ bags]. Therefore each member can contribute 12 bags totaling 192 bags [12 x 16]. NB: The 16 members will still have 3 bags to allocate but the space is not enough for all.

Total space allocated so far is 392 bags [20+180+192]

Remaining space to be allocated is 8 bags [400-392]. This can be allocated to 8 farmers (1 bag each).

6. The 8 members are determined by simple random probability. 16 small papers with 8 ticked and the rest left blank are folded into small pieces. They are put in a container and the 16 allowed to pick one each. The 8 with ticked papers are allocated space for 1 additional bag each.

Box 2: Examples of shares allocation at storage time

During the general meeting held at the beginning of the planting season Chemege Andrew is allocated the right to store 5 bags of potatoes. After harvest, he brings his 5 bags of potatoes to the store. At the entry of the store potatoes are graded and it turns out that 2 bags can be filled with large potatoes, 2 with medium and 1 with small size ones.

The following number of shares are assigned to Andrew:

2 Large-size potato bags = 2 shares

2 Medium-size potato bag = $2 \times 0.8 = 1.6$ shares

1 Small-size potato bag = $1 \times 0.6 = 0.6$ shares

TOTAL = 4.2 shares

In case the store capacity is completely filled (400 bags) by 250 bags of large potatoes, 100 bags of medium potatoes and 50 bags of small potatoes the total number of shares assigned to members will be:

250 Large-size potato bags = 250 shares

100 Medium-size potato bag = $100 \times 0.8 = 80$ shares

50 Small-size potato bag = $50 \times 0.6 = 30$ shares

TOTAL = 360 shares

Important note: The total number of shares will change every time new potatoes are brought in. They will also change when tubers are withdrawn from the store for individual sales (see Box 5). It is of paramount importance to properly keep record of entry/exit of tubers and review the total number of shares when any of these two events occur.

From the example above: Andrew needs cash and decides to withdraw one bag of medium-size potatoes for sale. He is removing 0.8 shares. Therefore he will have $4.2 - 0.8 = 3.4$ shares left in the store. The total number of shares in the store will be $360 - 0.8 = 359.2$

IV. WHEN WILL STORAGE BE DONE?

Potatoes will be admitted in the store at the peak/bumper harvest periods when potato prices are low and sales done when it is profitable, i.e., when the selling price is higher than the production and storage cost per unit. The target will be to sell potatoes at times of the year when demand and selling price are at the highest, however this will depend on how long the potato can stay in the ambient store without losing their desirable market traits. Strategically, potatoes are expected to be stored

for at least one month and it is envisioned that longer storage period would ensure higher selling price. In practice, potatoes will be admitted between July and August and January and February for first and second season harvests, respectively. Stored potatoes are labelled and remain property of the individual member who can decide to withdraw them at any time. However, access to stored potatoes is regulated in order to maintain the most suitable internal storage conditions. The store will be opened every Saturday morning between 7:00am and 9:00am when temperatures are still low and humidity is high. This will be done to both admit and remove potatoes from the store and to allow inspection of potato quality by the Production and Quality Control Committee. The store manager will be responsible for the opening and closing of the store. Only full bags of potatoes are allowed to entry and exit the store.

V. WHO DOES WHAT IN THE STORE?

Store Management Committee (SMC): The SMC chaired by the store manager who is also a member of the association will be in charge of the immediate management of the store. Specifically the manager will:

- Act as a custodian for the store and will supervise the store keeper
- Make timely communication with the executive to convene meetings that require decision of all members such as selling price
- Work with the Production and Quality Control Committee to ensure regular inspection of the potatoes in store for quality
- Ensure that all potato entry and exit records are kept and updated regularly
- Work in collaboration with store keeper to ensure safety of potatoes in the store.

The store keeper can be an employed person who will be responsible for routine checking opening and closure of the store. He will also ensure hygiene and security at the store. He will work closely with the store management.

Production and Quality Control Committee (PCC): The PCC is responsible for ensuring the quality of potatoes from production to the point of marketing. Specifically it will:

- Assess the potato production requirements for each member and make plans for bulk seed procurements where necessary
- Coordinate with authorized seed providers and ensure purchase and delivery of high quality seed
- Monitor and inspect individual and association gardens for quality
- Prepare and keep records of planting every production season
- Work with the Marketing Committee, and physically examine potatoes before purchase and admission to the store

- Work with the Store Management Committee to ensure regular inspection of potatoes in store
- Provide routine update to association's members on production and quality of potatoes in field and storage
- In collaboration with the Store Management Committee identify stored potatoes showing clear symptoms of quality deterioration (e.g., rotting, shrinking, sprouting) that have to be immediately removed from the store and returned to the owner in order to ensure that only quality potatoes are kept in the Association's store.

Marketing Committee (MC): The MC will conduct market intelligence, regularly scout and provide market prices and advice on appropriate selling prices. Nevertheless, final decision of and responsibility for selling potatoes remains with the individual owner of the potatoes. Specifically the MC will:

- Advise the group on setting season's production targets depending on demand trends
- Look for markets on behalf of the association and possibly negotiate with buyers for a good price
- Communicate with the members to bring their products to the store as well as with the buyers to buy the potatoes
- Coordinate the bulking of potato from all members of the association
- Conduct market intelligence, i.e., market research on behalf of the association
- Present market information reports to the association members
- Looks for quality seed and other inputs as well as organize collective buying
- Provide contact and locations of all customers and keeps such records
- Together with the Production and Quality Control Committee, checks the produce quality (e.g., moisture content, cleanliness, packing, grading) after harvest and before delivery to the store

Finance Committee (FC): The FC provides overall custodianship to the association finances. They ensure that proper finance management principles are adhered to in keeping the finances. Specifically the FC:

- Is in charge of keeping Association finances from both internal and external sources.
- Approves loan applications.
- Disburse credit to members whose applications have been approved.
- Monitors members with loans and reminds them to pay.
- Reports on finance performance of Association to the Executive committee

Executive Committee (EC): These steer the association and ensure good governance through high level decision making. Specifically it will:

- Define mission /vision, strategic objectives and policies of the association and ensures that business plans conform to them
- Review and approves business plans & budgets before presenting to the members
- Supervise other functional committees and store management in the execution of approved plans
- Mobilize resources for the association businesses on behalf of the members
- Appoint, appraises and discipline other committee members with management roles
- Monitor the activities of committees and sub-committees.

VI. DISTRIBUTION AND UTILIZATION OF STORE RETURNS

A 2% monthly or 0.6667% daily storage fee will be deducted from the revenue generated from potato sales (see Box 3). Part of this commission will be used to cover the operational costs of the store including overhead costs like security, maintenance, facilitation to store management committee, inspection, marketing survey costs among others. The rest of the revenue will be apportioned to members depending on the number of shares each one had in the particular stock cycle (as described in Box 3).

The Finance Committee will work with the store manager to ensure that clear accountabilities for all cash used is diligently and consistently recorded. Supporting documents will include signed vouchers and receipts. Payouts will be made to members at the end of the season when all stored potatoes have been sold. In the event that there is need to change the payout period, the Executive Committee will convene a general meeting for which new payout terms are discussed. Changes may arise from strategic decisions like saving proceeds for investment. All cash balances shall be kept in association bank account.

Cash balance from storage fees after deduction of overhead and operational costs/expenditures will be used as follows;

1. Further investment in the business: these will include procurement of productive inputs like water pumps and spray pumps to be used by paid up members involved in potato storage;
2. Association savings and loan scheme where members can borrow and return with an interest of 10% per month for a maximum of 3 months;
3. Visibility and marketing initiatives including printing of promotional material and T-shirts;
4. Storage capacity expansion.

Box 3: Share out cases

Chemege Andrew stores 5 bags of potatoes (2 bags of large potatoes, 2 of medium and 1 of small size ones). A total of 4.2 shares are assigned to him (see Box 2).

In that cycle the store capacity is completely filled (400 bags) by 250 bags of large potatoes, 100 bags of medium potatoes and 50 bags of small potatoes. Therefore, the total number of shares assigned to the members is 360 (see Box 2)

Potatoes are sold for a total value of UGX 40,000,000 after two months

A 2% monthly deduction (2% of 40,000,000) = 800,000 X 2 months = UGX 1,600,000 is made.

The balance available for share out is UGX 40,000,000 - UGX 1,600,000 = UGX 38,400,000

Chemege receives [(4.2 shares/360 shares) X 38,400,000] = UGX 488,000

Important note: *Members can also opt to receive payout based on the sales value of the own stored potatoes, for instance if they want to sell earlier than others - as describe later on in the Box 5. In such a case, these payouts should not be considered as part of the total value and, as described in Box 2, the total number of shares has to be reduced accordingly before proceeding with the calculation of the individual payouts.*

VII. GUIDING PRINCIPLES FOR MIFA STORE MANAGEMENT

The following principles will guide the effective management of MIFA potato store:

1. Demand forecasting

MIFA through the Marketing Committee will monitor changes in potato supply, demand and prices from various markets and inform the association on a weekly basis for decision making. This will help the association predict future demand and set profitable but realistic target selling prices. The information will also help the association determine how much to store and when to replenish, sell out part or all of the stock.

2. Store flow

MIFA will adopt the First-In-First-Out (FIFO) stock flow system. In this system, the first batch of potatoes admitted in the store will be the first to be sold in the event that partial sales are done. This will ensure that potatoes that have been stored for longer are the first to be sold. To this effect, potatoes will be admitted and recorded in batches for easy traceability. The store manager and records person will be

responsible for batch recording. They will be supervised by the Store Management Committee.

3. Cycle counting

In a given storage cycle in-store potato will be counted from time to time to reconcile actual potato in store and records of potato sold and/or withdrawn or disposed off due to deteriorated quality. This information will be used to decide whether to sell off the stock (in the event that there is deterioration in quality). It will also help in ensuring transparent regular/appropriate record keeping of all the transactions indicating what was stored, what has been withdrawn, and what has remained in the store using the stock records. The store manager and store keeper, supported by the Store Management Committee and the Marketing Committee, will be directly responsible for keeping store records and ensure security at the premises.

4. Process auditing

MIFA will once a year audit the store management process to ensure that they are still effective, flexible, responsive and efficient enough. The audit will assess the effectiveness and efficiency in the entire process including whether or not good quality potatoes are admitted, quality control within storage, proper record keeping, reduction in deteriorated proportion of potatoes and meeting of targets.

VIII. MIFA STORE MANAGEMENT PROCESS

This section provides guidelines on processes that MIFA will undertake to ensure that exclusively high quality potatoes are admitted so that potato shelf-life and income from sales are maximized. Given that MIFA members are also potato growers, the process activities discussed encompass those before planting and during cultivation, harvest and storage.

1. Pre-planting activities

Varietal selection: Varieties with longer dormancy periods and longer shelf life will be mainly promoted. However, aspects of customer preferences will also be taken into consideration. In the event that early maturing varieties with short dormancy are admitted, the batch will be recorded and prioritized for exiting the store before the longer dormancy types. The Production and Quality Control Committee will register potato variety grown by members and corresponding source of seeds and such information will be shared by the Store Management Committee for decision making on admission of the potatoes.

2. Crop management activities

The Production and Quality Control Committee will ensure that they supervise and provide support on production practices. They will also ensure that proper agronomic practices are followed by members who plan to store their potatoes. Special emphasis will be put to aspects of pest and disease management.

3. Harvest & postharvest activities

Dehaulming: The production and quality control committee will ensure that dehaulming is done for all potatoes to be admitted in the store. The slashing method will be promoted. The potato haulms/aerial parts will be removed through dehauling to prepare the tubers for storage by allowing the skin to set. The crop will be harvested 10-15days afterwards. This will be done to thicken the potato skin and ultimately reduce the amount of damage during handling.

Inspection: The inspections will be done when the potatoes are still in the garden to ascertain the quality of the potatoes expected to be stored, status of pests and diseases, the maturity of the tubers, whether dehaulming has been done and method used in the harvest, among others. The Production and Quality Control Committee shall be the responsible committee to carry out this primary task of inspection and will be facilitated to do this using operational funds from the storage fee.

Harvesting: Only mature and dehaulmed potatoes will be admitted in the store. Harvesting will be done manually or by oxen-drawn harvesters. In collaboration with the Store Management Committee and the Executive Committee, the Production and Quality Control Committee shall be responsible for all supervisory activities involved and the relevant costs will be covered by the storage fee.

4. Pre-storage activities

Transportation: All due care will be taken to ensure that damage is minimized during transportation of potatoes to the store. Transportation will be done by animal traction or trucks.

Primary sorting: This will be done at the garden to avoid packing diseased or damaged potatoes. First grading is also done in the garden, and all these activities are done under the supervision of the Production and Quality Control Committee in collaboration with the Store Management Committee and the Executive Committee.

Secondary sorting and grading: This shall be done at the store premises before produce is finally admitted in the store. This final sorting and grading is done to ensure that only good quality potato is stored. The potato will be graded into 3 categories: small, medium and large. There are customer segments with preferences for all three grades of potato. The Store Management Committee together with the

Production and Quality Control Committee will be responsible for carrying out this activity.

Weighing and recording: this will be done after second sorting and inspection to ascertain the final weight of each grade to be stored.

Storing: Admitted potatoes will be transferred into crates (100kg capacity) containing exclusively tubers of the same grade.

Labeling: Each crate shall be identified by a batch number and labelled accordingly. The batch number indicates date of admission, owner, variety and grade (Box 4). The store manager will issue a receipt to the farmer where it is clearly indicated the batch number and the corresponding number of shares (according to the coefficient presented in Box 2).

Box 4: Example of batch numbering

Batch Number: **RW/2216/CA/L**

First 2 letters indicate the variety

RW=variety name (**RW**angume)

Next four to six letters represent the date of admission to the store

2216=2nd February 2016

Next two letters are the initials of the person who supplied or sourced the potatoes

CA=**C**hemege **A**ndrew

The last letter indicates the grade

L=Large

5. In-storage activities

Potato curing: In-store potatoes will be allowed to cure for 7 to 15 days. During this period, potatoes will not be handled or disturbed.

Store humidity: Potato curing occur when temperatures are in the range of 5°C to 20°C. The Store Committee and manager will ensure that store humidity is maintained at 85% by placing a bowl of water at the entrance and regularly pouring water on the floor.

In-store inspection: The Production and Quality Control Committee will be in charge of inspecting the potatoes in storage. Inspection will be done every Saturday morning between 7:00am and 9:00am when temperatures are still low. The committee will train and nominate 10 association members to assist with the inspection on a rotational basis. This will not only enhance participation but promote learning among members.

IX. STORE RECORDS

Entry records

In order to ensure that there is a systematic records of what is being brought to the stores; the Store Management Committee shall effectively use the stock entry form as below to register all potatoes admitted in the store.

Date	Source	Contact	Grade	Batch code	Quantity (kg)	Entry price (UGX)	Comment
2/2/16	Chemege Anthony	075845256	Large	RW/2216/CA/L	100	500	
			Medium	RW/2216/CA/M	100	450	
			Small	RW/2216/CA/S	100	400	
3/2/16	Kato Sam	075565256	Large	RW/2216/KS/L	200	500	
			Medium	RW/2216/KS/M	100	450	
			Small	RW/2216/KS/S	100	400	

Exit records

At the time of exit of the stored potatoes the store manager and the Store Management Committee shall effectively and efficiently fill the stock exit record forms as below. Sales for different grades will be recorded differently. For example, large grade will be recorded separately from medium and small as their prices will vary.

Date	Destination	Batch	Quantity			Price (UGX)		Value (UGX)		Comment
			G	D	S	G	D	G	D	
5/4/16	Chemege Anthony	RW/2216/CA/L	100	0	0	1,200	600	120,000	0	
		RW/2216/CA/M	90	10	0	1,000	500	90,000	5,000	
		RW/2216/CA/S	80	10	10	600	400	48,000	4,000	
TOTAL: 267,000							258,000	9,000		

G – Good potatoes

D – Deteriorated potatoes

S – Spoilt potatoes

Box 5: Payout value for Chemege Andrew

The potatoes of Chemege Andrew have now been sold, because either he or the Marketing Committee have found a buyer. Andrew has two options:

Immediately receive the revenues from the sale of his potatoes:

Revenue from potato sale=267,000

A 2% monthly storage fee has to be paid by Chamege (2% of 267,000) =5,340X 2months = UGX 10,680

Chemege net revenue = UGX 256,320

Chamege has to present the batch receipt that he received at the time of storage. His number of share and the total number of shares left in the store have to be recalculated accordingly, as indicated in Box 2.

Wait until all stored potatoes are sold and receive his dividend

Alternatively, Andrew can decide to wait until all potatoes in the store are sold. The total revenue from the sale of stored potatoes will be distributed to members proportionally to the number of shares owned by each, as indicated in Box 3.

Important note: *The second system is the preferred apportioning method for the Association. However, each of these two strategies has his own advantages and risks and the choice depends on the specific needs and expectations of each member. For instance, a member with immediate need of cash will opt for the first method while another one may be interested to keep the potatoes as long as possible in the store in the expectation of a further price increase. In case, the Production and Quality Control Committee and the Store Management Committee identifies stored potatoes showing clear symptoms of quality deterioration (e.g., rotting, shrinking, sprouting) that must be immediately removed from the store and returned to the owner, there is no alternative to the first option.*

X. SECURITY MANAGEMENT STRATEGY FOR MIFA STORE

In order to ensure that all our stored produce remains in good custody till it is sold, MIFA shall put the following security measures:

1. Hire security guard or use the already existing but making sure the Association pays for his/her additional security services;
2. Construct a fence around the stores to minimize unnecessary entry of persons or animals;
3. Verify entry of persons and vehicles;

4. Ensure good record keeping of all transactions for proper accountability;
5. Having a leak proof and rodent proof store shall also ensure that we minimize losses of the stored produce;
6. Ensure that we put in place instructional posts/sign posts indicating no unauthorized entry of persons or vehicles;
7. Use good quality padlocks. Two padlocks will be used. The keys of one padlock will be kept by the storekeeper while the keys of the other padlock will be with the store manager;
8. And gradually as the Association grows, Mbale Police station will be informed on any emerging security issues.